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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,081	01/25/2002	Aaron Fiala	FGT 1622 PA	5142

7590

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EXAMINER

CULBERT, ROBERTS P

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,081

Applicant(s)

FIALA ET AL.

Examiner

Roberts Culbert

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8, 16, 22, 23, 25, 31, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 9-15, 17-21, 24, 26-30 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Objections

Claim 16 is objected to because of the following informalities: The claim does not end in a period.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 61035868 to Tate et al in view of U.S. Patent 5,783,261 to Potter et al and U.S. Patent 5,458,927 to Malaczynski et al.

Tate discloses a nitride hardening surface treatment for an aluminum rotary atomizer in order to improve abrasion resistance.

Tate does not teach preparation of the surface for treatment.

However the steps of cleaning or degreasing a metallic surface as well as the steps of removing the native oxide layers typically formed thereon is notoriously old and well known in the art of forming coatings on metals. Evidence that the steps are known in the art is provided in U.S. Patent 5,783,261 to Potter et al, and U.S. Patent 5,458,927 to Malaczynski et al. Potter shows the use of soap, water, nitric acid, and alcohol for degreasing a metal surface prior to application of a hard coating (Col. 3, Lines 60-65). Malaczynski shows the use of argon bombardment to remove the native oxide layer from an aluminum surface prior to application of a silicon carbide layer (Col. 2, Lines 23-34)

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It would have been obvious to one of ordinary skill in the art at the time of invention to prepare the surface by cleaning with soap and water or with an appropriate solvent such as acetone, alcohol, water, or to remove the native oxide layer with argon gas to allow suitable formation of a nitride or carbide layer.

Claims 16, 22, 25, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,919,773 to Naik in view of Japanese Patent No. 61035868 to Tate et al.

Naik teaches a method for improving the erosion resistance of metallic substrates by first applying layer of a group VI to group VIII element or a noble metal and followed by a boride, carbide, oxide, or nitride of a Group III to IV element. Preferably the interlayer may be chromium (Col. 3, Lines 49-51).

Naik also shows that the steps of cleaning and removal of oxide layers are known in the art. The surface is prepared by cleaning with detergent, acidic solution or alkaline solution (Col. 5, Lines 52-55).

Naik does not show application of the coating to a bell cup. However the Japanese patent cited teaches that it is known that bell cups are subject to abrasion from flowing paint.

It would have been obvious to one of ordinary skill in the art at the time of invention to apply an erosion resistant layer to a surface that is subject to abrasion in order to reduce the amount of erosion due to abrasion.

Claims 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,919,773 to Naik in view of Japanese Patent No. 61035868 to Tate et al. and U.S. Patent 4,902,535 to Garg et al.

Garg et al. teaches the formation of hard carbon coatings on titanium substrates with an interlayer. See Abstract. Garg et al further shows the formation of hard carbon-silicon coatings on titanium substrates using silane and methane gas (Col. 15, Lines 28-31).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the method described in Garg in order to form a suitable adherent hard carbon coating.

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Allowable Subject Matter

Claims 9-15, 17-21, 24, 26-30, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

March 1, 2003


SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700